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IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method for determining the likelihood that a human patient suspected of SMEI does or does not have SMEI comprising:

(1) ~~testing~~ screening a patient sample for the existence of an alteration in the SCN1A gene of the patient, including in a regulatory region of the gene, by sequencing the SCN1A gene;

(2) (a) terminating the process ~~with an inconclusive diagnosis~~ if no alteration is found, thereby establishing that the patient likely does not have SMEI; or

(b) identifying the alteration; and

(3) ascertaining whether the alteration, when one is detected, ~~is known to be~~ has previously been detected in a patient clinically diagnosed with SMEI and is therefore considered SMEI associated or has previously been detected in a patient not diagnosed with SMEI and is therefore considered non-SMEI associated or is not ~~known~~ considered to be either; wherein

(a) ~~a diagnosis which will indicate~~ the patient is categorized as having a high probability of having SMEI ~~is made where~~ when the alteration is ~~known to be~~ SMEI associated;

(b) ~~a diagnosis which will indicate~~ the patient is categorized as having a low probability of having SMEI ~~is made where~~ when the alteration is non-SMEI associated; or

(c) further analysis is undertaken to establish ~~whether the alteration is a SMEI associated or a non-SMEI associated alteration~~ the likelihood the patient suspected of SMEI does or does not have SMEI when the detected alteration is not considered to be either SMEI associated or non-SMEI associated,

wherein the detection of a SMEI associated alteration establishes that a patient suspected of SMEI likely does have SMEI.

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2. (Currently amended) A method as claimed in claim 1 further comprising establishing whether the alteration would result in a ~~major disruption~~ truncating alteration to a protein.

3. (Canceled)

4. (Currently Amended) A method as claimed in claim 1 wherein the alteration is one of the nucleotide changes identified in Table 3 as SMEI associated or non-SMEI associated.

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

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14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Withdrawn) A method as claimed in claim 5 wherein one of the assays examines the electrophoretic mobility of the SCN1A protein of the patient.

19. (Withdrawn) A method as claimed in claim 5 wherein one of the assays is an immunoassay.

20. (Canceled)

21. (Currently Amended) A method for determining the likelihood that a human patient suspected of SMEI does or does not have SMEI, comprising:

(1) ~~testing~~ screening a patient sample for the existence of an alteration in the SCN1A gene of the patient, including in a regulatory region of the gene, by sequencing the SCN1A gene;

(2) (a) terminating the process ~~with an inconclusive diagnosis~~ if no alteration is found, thereby establishing that the patient likely does not have SMEI; or

(b) identifying the alteration; and

(3) ascertaining whether the alteration, when one is detected, is as laid out in column 3 of Table 3 as SMEI associated or non-SMEI associated, or is not known to be either; wherein

(a) ~~a diagnosis which will indicate~~ the patient is categorized as having a high probability of having SMEI ~~is established~~ if a SMEI associated alteration as laid out in column 3 of Table 3 is identified,

(b) ~~a diagnosis which will indicate~~ the patient is categorized as having a low probability of having SMEI ~~is established~~ if a non-SMEI associated alteration as laid out in column 3 of Table 3 is identified, or

(c) further analysis is undertaken to establish ~~if the alteration is a SMEI associated or non SMEI associated alteration~~ the likelihood the patient suspected of SMEI does or does not have SMEI when the detected alteration is not known to be either SMEI associated or non-SMEI associated,

wherein the detection of a SMEI associated alteration establishes that a patient suspected of SMEI likely does have SMEI.

22. (Withdrawn) A method of determining the appropriate treatment for a SMEI patient comprising performing the method claimed in claim 1 or 21 and correlating the diagnosis reached with known indications and contra-indications for SMEI patients.

23. (Withdrawn) A method of determining the likelihood of adverse results from treatments of a SMEI patient including drug treatments and vaccinations comprising performing the method as claimed in claim 1 or 21 and correlating the diagnosis reached with known indications and contra-indications for SMEI patients.

24. (Currently amended) A method as claimed in claim 1, ~~wherein the likelihood that the alteration is a SMEI associated alteration is established through~~ wherein the further analysis undertaken to establish the likelihood the patient suspected of SMEI does or does not have SMEI when the detected alteration is not known to be either SMEI associated or non-SMEI associated comprises:

(a) considering genetic data for parents or relatives; and

(b) establishing whether the alteration has arisen *de novo* or is inherited.

25. (Currently amended) A method as claimed in claim 2, comprising ~~establishing a diagnosis which will indicate~~ categorizing the patient as having a low probability of SMEI in the case of an inherited mutation, ~~and indicate~~ a high probability of SMEI in the case of a *de novo* mutation, and a very high probability of SMEI where a *de novo* mutation would result in a ~~major disruption~~ truncating alteration to the protein.